

What is claimed is:

1. A mobile packet communication system comprising mobile terminals connected via a mobile radio communication network, subscriber nodes accommodating  
5 said mobile terminals, gate nodes connected to fixed equipment including Internet service providers or local area networks, and a plurality of location registration servers, one for each group of destination packet addresses having the same high-order digits, wherein  
10 said subscriber nodes, said gate nodes, and said location registration servers are interconnected by a network, and wherein:  

said subscriber nodes, said gate nodes,  
and said location registration servers are each assigned  
15 a unique address for routing;  

said location registration servers each  
include a register which stores, for each mobile  
terminal assigned a packet address containing the high-  
order digit of packet destination address associated  
20 with said each location registration server, the address  
of the subscriber node currently serving said each  
mobile terminal, or stores, for each fixed equipment  
assigned a packet address containing said high-order

digit, the address of the gate node to which said each fixed equipment is connected;

said subscriber nodes and said gate nodes each include a table used to retrieve the address of the corresponding location registration server by reference  
5 to the high-order digit of the packet destination address;

a transmitting node, which is a subscriber node that received a packet from a particular mobile terminal or a gate node that received a packet  
10 from particular fixed equipment, includes means for retrieving the address of the corresponding location registration server by reference to the high-order digit of the destination address contained in said packet, and  
15 for transferring said received packet to said location registration server;

said location registration server includes means for retrieving, by reference to the destination address contained in said received packet,  
20 the address of the mobile terminal corresponding to said destination address or the address of a receiving gate node connected to the fixed equipment corresponding to said destination address, and for returning the

retrieved receiving node address to said transmitting node; and

said transmitting node includes means for temporarily storing said receiving node address returned from said location registration server, and for transferring any subsequent packet having the same destination address and received from said mobile terminal or said fixed equipment, directly to said receiving node by using said temporarily stored receiving node address.

2. A mobile packet communication system as claimed in claim 1, wherein said location registration server includes means for transferring the packet received from said transmitting node on to said receiving node, and said transmitting node includes means for transferring directly to said receiving node any n-th packet ( $n \geq 2$ ) having the same destination address and received from said mobile terminal or said fixed equipment subsequently to the reception of said receiving node address from said location registration server.

3. A mobile packet communication system as claimed in claim 1, wherein said subscriber nodes, said

gate nodes, and said location registration servers are  
each assigned a unique Internet address for routing, and  
said network interconnecting said subscriber nodes, said  
gate nodes, and said location registration servers is  
5 constructed from a router network.

4. A mobile packet communication system as  
claimed in claim 1, wherein said subscriber nodes, said  
gate nodes, and said location registration servers are  
each assigned a unique ATM address for routing, and said  
10 network interconnecting said subscriber nodes, said gate  
nodes, and said location registration servers is  
constructed using semi-permanent connections on an ATM  
network, and wherein said subscriber nodes, said gate  
nodes, and said location registration servers each  
15 include means for transferring said packet by using  
adaptation layer AAL Type 5 protocol.

5. A mobile packet communication system as  
claimed in claim 1, wherein said subscriber nodes, said  
gate nodes, and said location registration servers are  
20 each assigned a unique ATM address for routing, and said  
network interconnecting said subscriber nodes, said gate  
nodes, and said location registration servers is  
constructed using semi-permanent connections on an ATM

network, and wherein said subscriber nodes, said gate nodes, and said location registration servers each include means for transferring said packet by using adaptation layer AAL Type 2 protocol.

5           6.    A mobile packet communication system as claimed in claim 1, wherein said subscriber nodes, said gate nodes, and said location registration servers are each assigned a unique address of adaptation layer AAL Type 2 for routing, and said network interconnecting  
10   said subscriber nodes, said gate nodes, and said location registration servers is constructed using semi-permanent connections of adaptation layer AAL Type 2 on an ATM network, and wherein said subscriber nodes, said gate nodes, and said location registration servers each  
15   include means for transferring said packet by using adaptation layer AAL Type 2 protocol.

          7.    A mobile packet communication system as claimed in claim 1, wherein said subscriber nodes, said gate nodes, and said location registration servers are  
20   each assigned a unique ATM connectionless address for routing, and said network interconnecting said subscriber nodes, said gate nodes, and said location registration servers is constructed from an ATM

connectionless network, and wherein said subscriber  
nodes, said gate nodes, and said location registration  
servers each include means for transferring said packet  
by using adaptation layer AAL Type 5 protocol or  
5 adaptation layer AAL Type 2 protocol.

8. A mobile packet communication system as  
claimed in claim 1, wherein said subscriber nodes, said  
gate nodes, and said location registration servers are  
interconnected by switched virtual connections (SVCs) on  
10 an ATM network.